

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

Initially, the Examiner's attention is drawn to applicant's Information Disclosure Statement filed December 2, 2002 (a copy of which is attached together with a copy of the USPTO postcard receipt acknowledging same). Attachment box No. 3 is checked on the front page of the Office Action Summary indicating no doubt that an initialed copy of the Form PTO-1449 was supposed to be attached to the Office Action. However, in fact, no such copy has yet been received. Accordingly, the Examiner is respectfully requested to forward a fully initialed copy of the 1449 signifying consideration of all such references.

In response to the rejection of claims 1-18 under 35 U.S.C. §112, second paragraph, the claims have been amended above so as to put them into more traditional US format.

Accordingly, all outstanding formal grounds of rejection are now believed to have been overcome.

The rejection of claims 1-18 under 35 U.S.C. §103 as allegedly made "obvious" based on the single reference to Steigelmann '896 is respectfully traversed.

The Examiner has correctly noted that Steigelmann does not teach:

- a. the specific ratio of Si to Al;
 - b. formation of products in vapor phase from which they are condensed out;
- and

c. the solid acid nature of the zeolite catalyst.

The field of catalysts is one of extreme unpredictability. For example, minor pore size modifications can affect both selectivity and activity of the same catalyst in a particular process. Variations in the Si content in a zeolite catalyst can also affect the performance of the same catalyst in a particular process. Similarly, the use of one type of catalyst, say zeolite X, in a particular process does not automatically indicate that all zeolites can and will provide the same kind of results.

The present invention uses steamed ultrastable zeolite Y or zeolite beta both having specific Si to Al ratios indicated in claim 1 for the alkylation of xylenes to obtain dimethylcumenes. Some advantages of using such catalysts are given on pages 3, 4 and 15 of the specification.

Contrary to the Examiner's perception, there is no teaching in Steigelmann et al that variation of Si to Al ratios in ultrastable Zeolite Y or zeolite beta can actually enable alkylation of all the isomers of xylene. In fact, though Steigelmann includes xylene in the list of aromatics which can be alkylated, there is no specific mention of which isomers are alkylated and all the examples of Steigelmann deal with ethylene conversion and ethylene – methane mixture conversion. As stated above, results obtained using in one process using a specific catalyst cannot be automatically extrapolated to other substrates, with different catalysts, even if the generic process is the same, such as alkylation.

The present invention seeks to solve a particular problem associated with xylene alkylation, namely the fact that catalysts used in the prior art did not display conversion and selectivity for all xylene isomers. The problems faced with the prior art have been elucidated on page 1 and 2 of the specification.

The catalysts used in the present invention overcome this problem and in fact can be used with equal effect with all three xylene isomers, collectively or individually, and can also be easily regenerated. The dimethylcumenes are also formed with higher selectivity.

Steigelmann is silent on the effect of Si to Al variation in a solid acid catalyst. In fact, from the teaching of Steigelmann itself, it is apparent that the level of predictability is low in the field of catalysts. The three sample catalysts prepared and used in the Steigelmann examples themselves show different results and performance when the particle size or the particle diameters are different. The focus in Steigelmann is on the pore volume, pore radius and particle diameter. There is no teaching of Si to Al ratio variation or its effect on alkylation of all xylene isomers.

Thus, it is respectfully noted that the Examiner has erred in holding that the Si to Al ratios can vary depending on the structure of the catalyst and that this teaches the ratios used in the applicant's invention. Steigelmann in fact provides no guidance towards variation in the Si to Al ratios being a parameter effective to ensure alkylation of all xylene isomers. Steigelmann also provides no guidance towards alkylation of all


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xylene isomers to dimethylcumenes using a ultrastable zeolite Y catalyst or zeolite beta catalyst with the specific Si to Al ratios indicated in claim 1.

Accordingly, this entire application is now believed to be in condition for allowance and a formal Notice to that effect is respectfully solicited.

Respectfully submitted,

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